ADMINISTRATIVE

Air Medical Dispatch Protocol

Recommended Elements of a Prehospital Air Medical Dispatch Protocol
(with revised appendix A, 5/2/03)

Introduction

The ability to safely fly a patient from the prehospital arena to the Emergency Department is an important attribute of EMS systems. Air ambulance agencies can provide rapid transport for severely ill or injured patients who require time-sensitive interventions at distant hospitals and often augment the local EMS system with critical care personnel and specialized capabilities. Air ambulance agencies can also provide access to patients who are in truly remote, frontier locations.

To maximize the potential benefits of air medical transport, the local EMS system, with active participation of the off-line Medical Director(s), should develop and implement an air medical dispatch protocol that incorporates an assessment of local health care resources and preferences. An air medical dispatch protocol will help to ensure that air ambulance agencies are requested and dispatched in a safe and efficient manner and when medically necessary.

This document is intended to provide guidance to local EMS systems and medical directors as they develop their own local air medical dispatch protocol. Although parts of this paper could be adopted as written, local EMS systems will need to customize certain sections in accordance with their community's needs and preferences.

Active members of Idaho's air medical community and ground EMS provided extensive input during the development of this document. This document has also been endorsed by the Idaho State EMS Advisory Committee.

Determination of Need
1. Air transport should be considered for patients who meet one or more of the following clinical criteria and when reliance on ground transport would result in an unacceptable delay in hospital care (see Appendix A):
    a. Trauma criteria
        i. Anatomic
        ii. Physiologic
        iii. Mechanism of injury
    b. Medical criteria
2. Air transport may also be indicated when a multiple casualty incident overwhelms the resources of the local EMS system.
3. Qualified personnel who are en route to the scene or on scene may determine the presence of clinical criteria that warrant air transport. Early consideration of air transport while en route to the scene is encouraged as this may reduce the time to definitive hospital care. Individuals who may be authorized to request an air ambulance include:

ADMINISTRATIVE

    a. EMS
    b. Fire
    c. Law enforcement
    d. Other qualified responders (i.e., U.S. Forest Service personnel)
    e. Individuals or organizations authorized by the air ambulance agency.

4. When the patient is in a remote location, public answering safety point (PSAP) personnel may be authorized to request an air ambulance prior to the arrival of on-scene personnel when they elicit one or more of the following clinical criteria from a bystander (a.k.a. "auto-dispatch"):
    a. Trauma criteria
    b. Medical criteria
5. When the need for air medical transport is suspected but unclear, the air ambulance agency may be placed on "stand-by" (the exact meaning of "stand-by" is usually defined by the air ambulance agency and may or may not include aircraft lift-off).
6. An air ambulance may only be cancelled by EMS personnel who have completed an on-scene patient assessment.
7. When the medical necessity of air medical transport is unclear or when "over-triage" or "under-triage" is suspected, contact on-line medical direction.

Selection of the Air Ambulance Agency
The selection of the air ambulance agency should be driven first by matching patient needs with the clinical capability of the air medical crew and their equipment, and the transport capabilities of the aircraft. Selection should always be driven by what is safe for all involved and what is best for the patient (see Appendix B).

1. The following are examples of mechanisms that can be utilized to select an air ambulance agency when air transport is medically necessary. Local factors will influence the relative ease of implementation and "buy-in" for each option. Each option has its own strengths and weaknesses.
    a. Air ambulance agency pre-designated and approved by the EMS system
        i. Exclusive provider
        ii. Rotation of providers
    b. Determination of closest available air ambulance agency capable of meeting patient's clinical needs on a case-by-case basis
    c. Honor patient request
    d. Request "generic" or "un-branded" air ambulance dispatch from State Comm
    e. Other
2. When an air ambulance agency is unable to fly due to on-scene, local weather conditions, "shopping" for another air ambulance agency is strongly discouraged. In a competitive marketplace, this practice can pressure a pilot into accepting a mission that jeopardizes the safety of both the air medical crew and the patient.

Communications
Air ambulance communications can be divided into three areas, request for the air ambulance, landing zone communications and notification of the receiving hospital.
1. Request for Air Ambulance

ADMINISTRATIVE

    a. The local EMS system should identify a single point of contact for air ambulance requests to ensure the efficient use of air ambulance resources and to help prevent duplicate air ambulance dispatches. The designated point of contact, usually the local PSAP or State Comm, should be charged with contacting the desired air ambulance agency in accordance with local protocol (see *Selection of the Air Ambulance Agency*). Alternatively, the local EMS system may allow authorized personnel to contact the desired air ambulance agency directly.

    b. The request for air ambulance should include as much information as is practical, such as:
- i. Type of incident and patient condition/severity
- ii. Incident and landing zone location(s)
- iii. Number of patients
- iv. Need for special gear/equipment
- v. Estimate of visibility and ceiling
- vi. Wind direction/speed estimate
- vii. Obstructions/hazards at scene
- viii. Temperature
- ix. Elevation
- x. Probable destination

    c. Requests to State Comm should specify the desired air ambulance agency, unless a "generic" or "un-branded" request is intended.

    d. To help prevent duplicate air ambulance responses for the same patient, nearly all air ambulance agencies operating in Idaho have voluntarily agreed to notify State Comm upon lift-off.

    e. No air ambulance should fly to or respond to any location unless specifically requested or placed on "stand-by" in accordance with local protocol.

2. Landing Zone (LZ) Communications

    a. The LZ officer is responsible for radio communications with the responding air ambulance (see *Landing Zones & Safety)*. Responsibilities include:
- i. Assisting the pilot in locating the LZ with simple directions and easily identifiable landmarks
- ii. Advising the pilot of LZ conditions and hazards.

    b. Primary communications between ground and aircraft should be on F2 155.280.

    c. Hand signals and gestures are discouraged.

3. Notification of the Receiving Hospital

    a. The receiving hospital should be notified in accordance with local protocol. In Idaho, the air medical crew typically notifies the receiving hospital as soon as feasible or upon departure from the scene.

    b. Hospital notification should include:
- i. ETA
- ii. Patient condition
- iii. Any additional information that will assist the hospital to prepare for patient arrival

ADMINISTRATIVE

Idaho Air Medical Contact Information

Eastern, Central Idaho

Air Idaho Rescue – Idaho Falls	1-800-247-4324
Portneuf Life Flight – Pocatello	1-800-237-0911

Central, Southwestern Idaho

NPA Air – Boise	1-888-290-4523
Air St. Luke's – Boise	1-877-785-8537
St. Alphonsus Life Flight – Boise	1-800-521-2444
St. Alphonsus Life Flight – Twin Falls	1-800-521-2444

Northern Idaho

Big Sky Paramedics- Sandpoint	1-877-339-0911
Life Flight – Missoula	1-800-991-7363
Northwest MedStar – Spokane	1-800-422-2440
North Idaho Back Country Medical Rescue- Orofino	1-208-476-4323
Lewiston	1-208-746-8271

Landing Zones & Safety

In an effort to standardize safe scene operations, Idaho's air ambulance agencies have developed the following basic landing zone (LZ) and safety guidelines. EMS units are encouraged to seek more specific and in-depth safety training from the air medical program(s) they intend to use.

Landing Zones fall into three basic categories, listed here in order of general safety.

- **Established helipads**. Usually located at airports or hospitals, heliports are generally constructed with consideration to size, slope, and surface, as well as approach and departure paths.
- **Pre-established (or Designated) Landing Zones**. These are essentially pre-arranged rendezvous locations. By pre-planning specific LZ sites with your chosen air medical provider, the pilots are given the opportunity to survey the area ahead of time to identify potential hazards.
- **On-scene Landing Zones**. Having the aircraft land at the scene typically offers the most expedient evacuation of the patient. Care must be taken to insure a suitable and safe LZ is prepared.

1. Landing Zone Officer. The most important component of safe scene operations is the LZ Officer.
   a. Minimum qualifications

ADMINISTRATIVE

- i. Completion of a LZ class, preferably from the service being used.
   - b. Responsibilities
      - i. LZ preparation
      - ii. Communications (see *Communications)*
      - iii. Safety
2. Landing Zone Preparation. The following criteria are generally considered "ideal". If local conditions necessitate deviation, consult the pilot as soon as possible.
   - a. Size - The preferred size of landing zone is 100 ft. X 100 ft (minimum).
   - b. Slope – The slope of the ground should be no more than 5 degrees (gentle slope).
   - c. Surface – The ground must be a firm surface, preferably, with no loose dirt or snow. If necessary, and available, consider wetting down dirt surfaces. Loose snow can be compacted with snowmobiles.
   - d. Hazards/Obstructions
      - i. Hazardous Materials – The presence of hazardous materials MUST be relayed prior to their approach to the scene.
      - ii. Clear Area **-** Area is clear of loose debris, large rocks, posts, stumps, vehicles, people, animals, and other hazards.
      - iii. Overhead - Free of overhead obstructions (wires, antennas, poles)
   - e. Marking/Lighting
      - i. The four corners of the landing zone should be marked. During the daytime, this can be done with traffic cones. At night, flashlights, "LZ lights" or low-beam headlights can be used. Flares, if used at all, must be used with extreme caution as they present a fire hazard and should be secured to the ground.
      - ii. Identified hazards should be illuminated if possible.
      - iii. NEVER direct any lights up at the aircraft or use high-beam headlights.
   - f. The pilot always has the final say with regards to landing zones. He/she may request an alternate site be chosen.
3. Landing Zone Communications. The landing zone officer is responsible for radio communications with the responding air ambulance. Responsibilities include:
   - a. Assisting the pilot in locating the LZ with simple directions and easily identifiable landmarks. Avoid using directions such as right and left unless the aircraft is directly in sight.
   - b. Advising the pilot of LZ conditions, wind speed and direction and hazards.
   - c. Primary communications between ground and aircraft should be on F2 155.280.
   - d. Hand signals and gestures are discouraged.
4. Landing Zone safety
   - a. Approaching the aircraft
      - i. Ensure no one approaches the aircraft until specifically directed by the pilot or crew.
      - ii. Always approach from the front half of the aircraft (9 o'clock to 3 o'clock), in view of the pilot and while maintaining eye contact.
      - iii. Approach from the downhill side if landed on a slope.
   - b. The tail rotor is an especially dangerous area because, due to its speed, the blades may be nearly impossible to see. NEVER go near the tail of the aircraft while it is running.

ADMINISTRATIVE

    c. Rotor wash is the air forced down by the main blades. Creating "winds" near 100 MPH, all loose objects such as hats, sheets, blankets, etc. must be secured. Consider dirt and small rocks as potentially becoming airborne hazards and wear appropriate personal protective equipment. If you drop something, do not chase it!

Patient Destination
1. The air ambulance should transport the patient to a facility in accordance with the local EMS patient destination protocol.
2. In the absence of local protocol, patient destination should be determined in accordance with air ambulance policy.
3. In general, the patient should be transported to the closest appropriate facility.
4. Patient preference
    a. Patient preference may be considered if the requested facility is capable of providing the necessary medical care and if the requested facility is located within a reasonable distance.
    b. When transport to the requested facility is not in the best interest of the patient (i.e., the requested facility is unable to provide the necessary medical care), the patient must be capable of providing an informed refusal prior to transport to that facility.
5. Consider on-line medical direction in the following situations:
    a. The appropriate patient destination is unclear
    b. The patient's requested facility is unable to provide the necessary medical care and the patient insists on transport to that facility.
    c. The patient's requested facility is inconsistent with local EMS and/or air ambulance policy.

Quality Improvement
The local EMS system should continuously evaluate the performance of its air ambulance providers. In fact, the local EMS system may incur liability when it does not make a reasonable effort to monitor air ambulance performance and the air ambulance service it chooses to request does not meet the community standard of care.

1. The local EMS system should consider monitoring the following data:
    a. Air ambulance response time (air ambulance request by local EMS – air ambulance arrival on scene)
    b. Air ambulance on-scene time
    c. Patient destination (i.e. compliance with local destination protocol)
    d. Other
2. Patient treatment and outcome information should be used to review the utilization of air ambulances, including their appropriate use as well as the failure to request an air ambulance when indicated, and to validate "auto-dispatch" and other air ambulance dispatch criteria

ADMINISTRATIVE

Appendix A: Air vs. Ground Transport Considerations

Morbidity and mortality can often be reduced when certain patient care interventions are provided in a timely fashion. For critically ill or severely injured patients, the chance of survival decreases as the time to definitive care increases. Air transport positively impacts patient outcome by providing rapid transport to a facility that is capable of providing definitive patient care and by reducing the dangerous out-of-hospital time interval.

Patients who might benefit from air transport include the severely injured trauma patient, the cardiac patient with an acute coronary syndrome, the stroke patient who is a thrombolytic therapy candidate, the patient with a ruptured abdominal aortic aneurysm and the premature newborn who requires the specialized care of a neonatologist and NICU. Clinical criteria that help identify patients who might benefit from air transport have been developed by the National Association of EMS Physicians, the Air Medical Physician Association, the Association of Air Medical Services and the American Academy of Pediatrics.[1,2,3]

While speed may be the most apparent difference between air and ground transport, altitude and vibration may also impact patient outcome. Higher altitudes are associated with a reduced partial pressure of oxygen and in the absence of supplemental oxygen, may induce hypoxia. Changes in barometric pressure may also adversely affect certain patient conditions and medical devices. Differences in the type and degree of vibration associated with air and ground transport may also be clinically significant, especially when transport time is prolonged (i.e., unstable cervical spine injury). Altitude and vibration may also affect the performance of EMS providers. Air medical transport personnel are trained to recognize, manage and prevent or minimize these effects where possible.

[1] Thomson D, Thomas S. Guidelines for air medical dispatch [position paper]. Prehosp Emerg Care. 2003; 7:265-171.
[2] Jablonowski A. Position paper on the appropriate use of emergency air medical services. J Air Med Tranport. 1990; Sept29-33.
[3] MacDonald M. Guidelines for Air and Ground Transport of Neonatal and Pediatric Patients, 2nd ed. Elk Grove, IL: American Academy of Pediatrics, 1999.

ADMINISTRATIVE

Appendix B: Selection of Air Ambulance Agency Considerations

To safely utilize air medical resources, the local EMS system must adopt, in advance, a mechanism for air ambulance agency selection that incorporates an assessment of local preferences and available air ambulance capabilities. Factors to consider during this process include the capabilities of the air medical transport team, aircraft capabilities, air ambulance agency characteristics, response time, membership programs and patient preference.

Transport Team Factors.
Air ambulances can be staffed with a variety of personnel including EMTs, paramedics, nurses and other health care providers. Specialized providers, such as respiratory therapists, NICU nurses, labor & delivery nurses and IABP technicians, are often utilized for interfacility transports.

The local EMS system should be familiar with the clinical capabilities of its available air ambulance agencies. Most air ambulance agencies, but not all, are staffed and equipped to provide ALS or critical care. In fact, the level and scope of patient care will be mainly determined by crew configuration (i.e., EMT-P, RN, other) and their carried equipment and supplies (i.e., transport ventilator, defibrillator, blood products, medications).

Aircraft Factors.
Not all helicopters are made alike, and some of the differences may be clinically significant. Aircraft characteristics to consider include:
1. Space and weight limitations (one vs. two patient transport capability)
2. Cruise speed
3. IFR (instrument flight rules) capability in the event of inadvertent weather conditions
4. Single vs. twin engine (margin of safety)
5. Rescue capability
   a. Ability to land at remote scenes
   b. Non-technical rescue
   c. Technical rescue
      i. Rescue hoist
      ii. Water rescue
      iii. Vehicle rescue – extrication equipment

Agency Factors.
While all air ambulance agencies must meet the minimum standards required for state EMS licensure, the following attributes can distinguish one flight program from another:
1. CAMTS accreditation (Commission on Accreditation of Medical Transport Systems)
2. Hospital-based
3. Dedicated/active off-line medical direction
4. Service
   a. Patient follow-up/outcome information
   b. Equipment return
5. Outreach education programs
   a. Landing zone safety
   b. ACLS, PALS, etc

ADMINISTRATIVE

Response Time.
In theory, the closest available service that can provide the level of medical care needed by the patient should be considered first by the local EMS system. In reality, the determination of the closest available service can be a time-consuming process, unless the local EMS system utilizes an automated system to match scene location with response time. Response time is dependent upon:
1. Distance to the patient
2. Terrain
3. Weather
4. Time for pilot acceptance and flight planning
5. Air medical crew response time
6. Aircraft cruise speed which depends upon:
    a. Prevailing winds and weather
    b. Temperature
    c. Altitude

When the selected air medical service is unavailable or unable to respond in the usual or expected time period, a mechanism should exist to advise the requesting EMS agency and, if necessary, to transfer the request for an air ambulance to another appropriate service. Responsibility for this process can be assigned to either the air medical service or the requesting EMS agency/system.

Membership Programs & Patient Preference.
Rarely, patients may express a preference for a particular air medical service. If air transport is medically necessary and the patient's condition would not be compromised by the preferred provider's response time and clinical capability, the patient's request should be honored. If necessary, on-line medical direction should be consulted when the patient's preferred service is not capable of meeting the medical needs of the patient or when the difference in response time is clinically significant.

Membership programs are designed to provide financial support for the air ambulance agency; they are not insurance programs. Nonetheless, when patients express a preference for a particular air medical service, the preference is often a result of program membership. As above, medical need, response time, clinical capability and safety must be considered in conjunction with a patient's membership status and stated preference.